

NASA Glenn
Plum Brook Station

NINTH EDITION
OCTOBER 2003

Decommissioning NEWS

Plum Brook Station

A quarterly
newsletter
to inform the
public about NASA's
Decommissioning
Activities

NASA to Share Important Progress at Decommissioning Community Information Session

NASA is looking forward to sharing our progress on decommissioning the Reactor Facility - and the project's next steps - with Erie County neighbors at our fifth annual Community Information Session on Tuesday, October 21. The event will take place from 7:30 p.m. to 9 p.m. in the Sandusky High School cafeteria. The Information Session will be preceded at 5:30 p.m. by a quarterly meeting of the project's Community Workgroup, which is also open to the public.

"NASA has taken important steps in recent months," said Decommissioning Project Manager (and Norwalk resident) Tim Polich. "Our efforts to begin removing the reactor internals and segmenting the reactor tank represent some of the most significant work on the project, and we welcome the opportunity to discuss these milestones with our neighbors." Members of the

Decommissioning Team will be on hand at the Community Information Session (CIS) to answer questions and provide up close and personal contact with community members in attendance.

While the CIS will focus on work completed recently, the evening will also feature the public unveiling of a documentary video that details the history of the Reactor Facility - the only one ever built by NASA - which operated at Plum Brook Station from 1962 to 1973. The video includes footage of project work and interviews with several NASA retirees who once operated the facility. Several of these "movie stars" - who continue to serve in both formal and informal consulting roles on the project, providing valuable insight into decommissioning activities - will be on hand at the CIS. Also present will be members of the Community Workgroup, who provide NASA and the community with a vehicle for two-way communication about decommissioning.

According to Polich, "This Information Session is all about community: bringing together the community of technical and construction professionals who are undertaking decommissioning - who live in

the communities surrounding Plum Brook Station - and members of the community at large. We've enjoyed the hospitality of BGSU Firelands and Perkins High School in recent years and now we're glad for the chance to hold this event in Sandusky." Senior Project Engineer (and Huron resident) Keith Peacock noted that this CIS is also "a good educational opportunity. Science students can learn more about radiation and environmental protection. Students of engineering and the construction trades can learn what's involved in removing several thousand tons of steel and concrete, and history students have the chance to learn about a facility that operated in the community's backyard. We urge students of all ages - and their parents and teachers - to attend."

Visitors to the CIS are welcome to attend the entire event, or to just stop by to catch some of the continuous activity that will take place throughout the Information Session. Added Tim Polich, "NASA is committed to open and honest communication, and to continuing our good relationship with our neighbors. We hope you will join us on October 21." ■

WHAT'S INSIDE

See the
Year's
Progress in
Pictures

PROJECT UPDATE

Reactor Segmentation & Removal of Internals Well Underway

NASA is making progress along the bright red Master Schedule time-line called "Reactor Segmentation." Segmentation activity is drawn in red on the Master Project Schedule because it is considered a "critical path activity." Indeed, segmentation, with the accompanying removal of the reactor internals, is the most critical part of the Decommissioning Project. Segmentation work began in early August, when a crew from project subcontractor Wachs Technical Services removed three components known as Horizontal Beam Tubes. These tubes were metal pipes that ran through the side of the reactor vessel wall and next to the reactor's core box and were used in experiments when the reactor was operational. Because these tubes contained a significant portion of the radiation remaining in the reactor vessel, NASA made their removal the first order of business during segmentation.

The Wachs crew removed the tubes in the manner they had practiced - remotely - operating specially articulated tooling, while looking into camera monitors to minimize exposure. The crew used a special air-activated table device to guide the tubes out of the side of the reactor and into one of the quadrants (Quadrant D) of the Reactor Facility. Then the workers used a specially designed, remotely operated band saw to cut through the tubes, after which an overhead crane lifted the cut pieces out of the quadrant and into a stainless steel liner. The crew used a remote device to insert a stainless steel plug into the hole in the reactor wall and made use of a special Cask Transfer System (involving the large capacity crane and a cart mounted on trolley-like tracks) to move the external ends of the Horizontal Beam Tubes into a dedicated area of Quadrant A. There they underwent further size reduction and temporary storage in the liner. The crew moved the "hotter" ends - the ones that had been inside the reactor tank - into a specialized storage cask. Later, the crew lifted the filled and sealed liner into a specialized cask that was sealed for transport and lifted onto a "lowboy" truck for safe transportation and disposal.



A truck bearing a cask that contains segmented components from the reactor vessel leaves the Reactor Facility at Plum Brook Station in September, en route to a licensed disposal facility in South Carolina.

CONTINUED ON PAGE 4

Take a Look at Our PROJECT IN PROGRESS..... DECOMMISSIONING



NASA installed this special ventilation system in the Containment Vessel for use during segmentation activities.

Systems in Place

The start of segmentation activities is a major step forward for the Decommissioning Project. But before this work could begin, NASA had to take a number of steps, including installing a number of systems. Early last spring, NASA installed a Cask Transfer System to efficiently and safely remove packaged waste from the inside of the Reactor Facility. NASA also installed a special ventilation system for use in an enclosed area of the reactor building adjacent to the reactor vessel. The system "turns over" the air in the enclosure every 30 minutes and its HEPA (High Efficiency Portable Air) filters are 99.97% effective. The enclosure is being kept at negative air pressure, to minimize any outward escape of dust from segmentation.



A crane lowers a cask onto a cart, part of the Cask Transfer System, so it can be moved into the Reactor Facility for packaging waste.

A new, temporary electric system was also installed in the Reactor Facility (see the July 2003 edition of Decommissioning News), providing improved lighting and safety for decommissioning workers. In August, NASA began work on a Canal Transfer System, similar to the Cask Transfer System and designed to move highly activated components from Hot Dry Storage to the Containment Vessel, where workers will transfer the components into a shipping cask.

Preparing for Segmentation

Throughout 2003, NASA crews continued to remove and package loose (tools, furnishings and machinery) and fixed equipment from the Reactor Facility's quadrants and canals, and, last spring, began using the Cask Transfer System for moving fixed equipment. NASA also removed and packaged loose and fixed equipment from several other buildings and areas in the Reactor Facility.

Through mid-September, NASA had transported 48 sealed containers of low-level waste (including one cask filled with segmented components from the reactor vessel) in a total of 12 shipments, which continue on a regular basis. NASA also removed asbestos and lead - as well as PCB contaminated ballasts and fluorescent tubes (from light fixtures) - in several areas of the Reactor Facility and continues with characterization activities.

In November 2002 and April 2003, NASA conducted the first reactor tank entries in 30 years. Using remote instruments and a video camera, workers took radiation readings inside the reactor tank and videotaped the condition of the components within, which provided vital information on radiation levels and helped in planning for segmentation.



Control panel being removed from "lily pad" in preparation for segmentation.



Workers take radiation readings, using an instrument mounted on a special pole, during April's reactor tank entry. The crew performed all tasks while looking at a video monitor, to minimize their exposure.



A shipping container filled with fixed equipment from the Containment Vessel's quadrants and canals rests on a Cask Transfer System cart.



In July, NASA took delivery of a shipment of stainless steel cask liners that were to be used during segmentation.

**Do you want to know what 's happening? Do you have questions or comments on Decommissioning?
CALL OUR INFORMATION LINE AT 1-800-260-3838.**

Take a Look at Our PROJECT IN PROGRESS..... DECOMMISSIONING

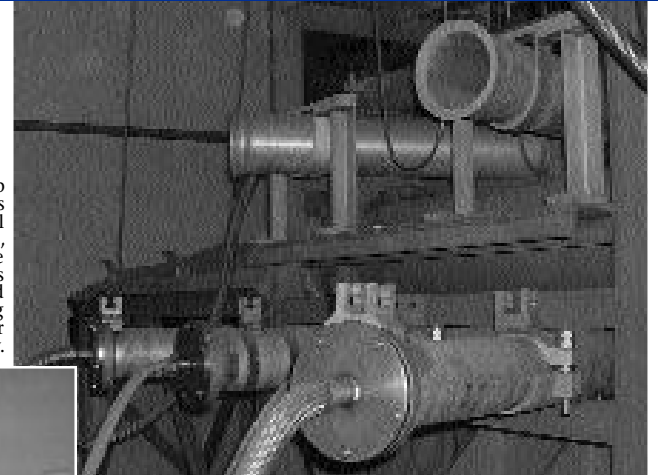
Practice Makes Perfect

In May 2003, workers from Wachs Technical Services, the subcontractor performing the segmentation work, arrived on site to begin additional mock-up training. (see article on page 4).



A crew from Wachs Technical Services works on a mock-up of a Horizontal Beam Tube, a component that extended from the reactor, during mock-up training for segmentation.

The Mock-up Reactor, with its three Horizontal Beam Tubes, (shown at the center of this photo) provided a great training opportunity for the Wachs Crew.



A crew works on a mock-up of a beryllium plate (similar to what will be removed from the reactor) during mock-up training.



A worker surveys the Mock-up Reactor core box area for radiation during mock-up training.



Workers prepare to remove a Horizontal Beam Tube from the reactor vessel.



Preparing to segment the partially withdrawn Beam Tube (note the band saw at the top of the photo).

Segmentation Begins

NASA achieved a Decommissioning Project milestone the week of August 4, when segmentation activity began. A Wachs crew removed all three of the Horizontal Beam Tubes from the side of the reactor tank, then shifted to the removal of other core components through the top of the reactor tank.



Workers install a steel shielding plug in the side of the reactor vessel after removing a Beam Tube



Workers unbolted and removed the Reactor Pressure Vessel Head from the reactor tank in early September, making it easier to segment and remove some of the reactor internals.

VISIT US ON-LINE

You can find our
Decommissioning Website at
www.grc.nasa.gov/WWW/pbrf



Topics in Upcoming Edition

Project Update

A Look Back at the Community Information Session
Workgroup Member Profile

NASA shipped the cask to a licensed disposal facility in Barnwell, SC, where it arrived safely on September 4.

NASA has also undertaken several other shipments of low-level waste - consisting of loose and fixed equipment that had been collected from (and packaged in) quadrants of the Reactor Facility over the past several months - to the Alaron licensed waste reprocessing facility in Pennsylvania. In addition, NASA has completed removal of the Reactor Pressure Vessel Head and the installation of necessary shielding and support systems (cranes and ventilation) to allow the removal of the reactor internals to begin. Currently, work is proceeding on Phase 2, the removal of internals from the reactor's core region. This work is scheduled to run through early 2004.

Before segmentation could begin, NASA had to undertake a substantial amount of preparatory work and training, and undergo an Operational Readiness Review (ORR). NASA held the ORR in late June to determine whether the Decommissioning Team's Segmentation Plan, if carried out, would produce the desired result - and whether the team was ready and capable of executing the plan as safely as possible. The Segmentation Plan describes a seven phase, comprehensive approach to removing reactor internals and dismantling the reactor tank, beginning with "Phase 0" - a setup phase to ensure that the reactor quadrants and canals were adequately prepared for work to proceed. For example, tools and materials needed for workers to conduct activities were all "pre-staged" and placed in ready reach before work began. Cask liners were put in place to enable the safe packaging and ultimate transport of waste materials to designated disposal locations. This substantial prep work was accompanied by a similar amount of "mock-up" training (see accompanying article to the right).

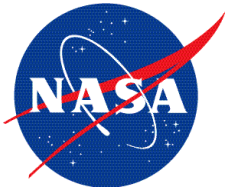
According to NASA Decommissioning Project Manager Tim Polich, segmentation operations represent "a genuine milestone in our efforts to undertake a safe and successful decommissioning. Throughout this year, we have refined our safety plans, found better ways to do the work and practiced accordingly. Not to sound like the cop in the SWAT movie, but this is what we trained for - and we are pleased with the progress that we have made." The next steps in segmentation will be described in the January 2004 edition of Decommissioning News. ■

Mock-up Training Was Critical to Reactor Components Disassembly and Removal

It's been more than 30 years since NASA last produced neutrons at the core of its 60-megawatt test reactor at Plum Brook Station, and beamed them at materials being tested for use in space. Today, with the help of mock-up training, the reactor's Horizontal Beam Tubes have been removed and carted away to an approved disposal site. Also, work on the removal of the reactor core box is well underway. The purpose of mock-up training was to practice, using specially designed tools. By practicing in a non-radiation environment, workers could minimize the time they would be exposed to radiation during the actual work. Subcontractor Wachs Technical Services designed and produced specialized tooling and mock-ups at its shop in North Carolina and then shipped them to the Reactor Facility.

During mock-up training, workers became extremely proficient. In the case of the Beam Tubes, workers were able to reduce the amount of time it took to do the task and therefore reduce the overall time spent in the radiation environment. Cutting the tubes, re-capping the vessel, lifting the tube pieces (by crane) and packing the pieces into liners and shipping casks were maneuvers controlled and watched by a half-dozen video cameras and directed by remote control, in both mock-up and actual work carried out throughout the summer.

Wachs also made extensive use of the Mock-up Reactor (MUR) that once operated continuously with the test reactor. The MUR was a physical replica of the test reactor, with about 95 percent of its assembly - including the reactor internals - identical to the larger unit. According to NASA Senior Project Engineer Keith Peacock, "The MUR used much smaller amounts of nuclear fuel than did the test reactor when they were both operational, so it provided Wachs with an opportunity to train in virtually a no dose environment. The MUR once again proved to be a great laboratory for learning," and enabled the crew to more safely test "articulated" tools that extend or bend around shielding. During this highly successful training, the crew actually disassembled much of the MUR, and will finish the job during ongoing segmentation work. ■



**NASA Glenn
Plum Brook Station**
6100 Columbus Avenue
Sandusky, Ohio 44870

SAVE THE DATE
TUESDAY, OCTOBER 21
7:30 p.m. to 9 p.m.
Community Information Session
Sandusky High School (cafeteria)
2130 Hayes Avenue, Sandusky